IMPACT REPORT

2025-2026



Center for Conservation in Madagascar

Saint Louis Zoo
WildCare Institute®

Background Summary

The Center for Conservation in Madagascar is one of the original Centers of the Saint Louis Zoo WildCare Institute. The Center's primary goal is to reduce direct pressures on Madagascar's threatened and endangered species in Eastern Madagascar. To achieve this goal, the Saint Louis Zoo works through a consortium known as the Madagascar Fauna and Flora Group (MFG). The MFG was founded in 1988 on the principle that uniting individual institutions under one umbrella significantly increases the contribution any one facility can make on its own. Dr. Karen Freeman is the MFG's Executive Director and receives part of her salary from the Center as an Independent Contractor.

The Saint Louis Zoo has been an integral member of the MFG since its creation. In addition to holding the highest level of membership status, the Zoo has been the international headquarters of the MFG three times, first under the Chairmanship of the Dr. Jeffrey Bonner, second under the Chairmanship of Dr. Eric Miller, and currently under the Chairmanship of Dr. Lisa Kelley.

Since 2018, the Center has also collaborated with Dr. Fidy Rasambainarivo, Assistant Professor of East Carolina University and Co-Founder of Mahaliana, through his role as an Affiliate Scientist of the Zoo. These collaborations include the genetic evaluation and management of critically endangered lemur species in Betampona Natural Reserve, carnivore behavioral ecology research, a cat and dog control program and awareness campaign, lemur health research at Park Ivoloina, capacity building at Mahaliana Labs, and most recently, serving as a core member of the Save a Species Project (see page 5).



Dr. Karen Freeman

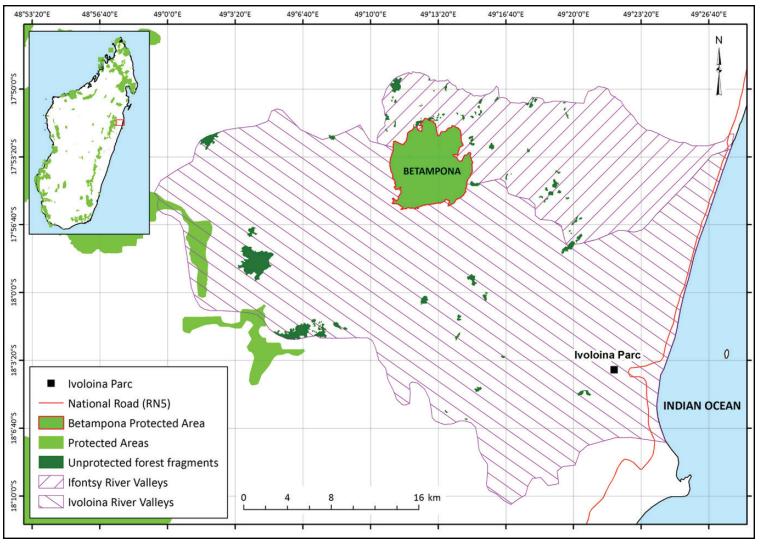


Dr. Fidy Rasambainarivo

Location and Focal Species

Designated as a protected area in 1927, Betampona Natural Reserve is a 2,228-hectare rainforest fragment that contains exceptionally high levels of plant and animal diversity (Madagascarfaunaflora.org). MFG's continual research presence and community engagement has protected Betampona from large-scale habitat loss and degradation despite the fact that it is surrounded on all sides by village activity. The site is home to 11 species of primates, including three that are critically endangered; the black-and-white ruffed lemur (*Varecia variegata*), the diademed sifaka (*Propithecus diadema*) and the indri (*Indri indri*).

The second site, Park Ivoloina, is a former forestry station that has been transformed into a 282-hectare conservation, education, research and training center. Located just 30 minutes north of Toamasina, Park Ivoloina also is home to a four-hectare zoo for native wildlife, and serves as a refuge for black-and-white ruffed lemurs that have been confiscated by authorities from private homes.



Eastern Madagascar Figure 1: The two primary location sites supported through the Center. Betampona Natural Reserve is a protected lowland rain forest. Parc Ivoloina is one of only two nationally recognized zoos in Madagascar.

Highlights of Center Impact

Capacity Building Through Chainsaws (fall of 2025)

Written by Tom Sehnert, Director of Maintenance, Saint Louis Zoo

During the 2024 Saint Louis Facility Management (FM) welding training trip, Jean Jaques (MFG Country Director) expressed interest that we return in 2025 to train the Park Ivoloina team in arborist capabilities, including chainsaw operation and tree management. This need has become particularly relevant given the number of invasive species on site, which are currently managed using handsaws and axes—an approach that is both slow and labor-intensive.

In addition, cyclone activity in Madagascar has increased significantly in recent years. Access to chainsaws, combined with proper training, would allow the team to carry out more proactive tree removal and respond more effectively to storm damage, including the rapid clearing of downed trees. Based on these needs, planning began for the 2025 program with a focus on arborist training and forestry management.

In 2025, Joe Leritz, Director of Horticulture at the Saint Louis Zoo and a certified arborist, joined the effort to support the development of chainsaw operation and tree management capabilities at Park Ivoloina. As in prior years, the program began with a kickoff meeting involving Jean Jacques and Karen Freeman to define the scope of work and identify participating staff. Given the increased risk associated with chainsaw use and tree felling, safety remained a primary focus. Unlike previous training efforts, this phase required a structured classroom component to ensure that all participants had a clear understanding of safety protocols before operating equipment.

FM again leveraged vendor partnerships to secure necessary equipment and training resources. Stihl Power Equipment responded with significant support, providing three chainsaws, replacement parts, chains, bars, and three full sets of personal protective equipment. In addition, Stihl hosted a full-day training session at the Saint Louis Zoo WildCare Park for Zoo staff and provided instructional materials, including a PowerPoint presentation, which were adapted for use



Tom Sehnert and Joe Leritz with Stihl donations for MFG team

at Park Ivoloina. We also acquired high quality handsaws, pruners, and metal fabrication supplies to support both forestry work and continued habitat repairs.

Upon arrival in Madagascar, we dedicated the first full day to classroom instruction, covering safety procedures, equipment familiarization, operation, maintenance, and repair. The second day transitioned into hands-on training in a controlled environment, allowing staff to apply what they had learned under close supervision.



Joe Leritz leading a training workshop for the MFG team at Park Ivoloina

Fieldwork began at the entrance of the park, where we demonstrated proper tree felling techniques while MFG staff observed. Participants then practiced by cutting branches and trunk sections before progressing to felling low-risk trees under supervision. While the team had prior experience using hand tools, we placed additional emphasis on how energy is released more rapidly when using chainsaws, requiring greater attention to control and safety.



Joe Leritz leading a training workshop for the MFG team at Park Ivoloina

The entrance project extended over approximately one week, after which work moved further into the park. Activities included selective tree removal for invasive species management, proactive hazard reduction in preparation for cyclone events, and improving sunlight access to certain habitats.

As training progressed, we evaluated skill development and identified the most capable operators to ensure safety and effective use of equipment.

In addition to forestry work, the team supported ongoing conservation and visitor engagement efforts by fabricating species signs for native plants as part of a developing botanical walk. Toward the end of the three-week period, efforts focused on constructing sign holders, completing installations, and identifying priorities for the 2026 program.



Chainsaw training for the Park Ivoloina entrance project

Update

Written by Karen Freeman

On February 10th 2026, the city of Toamasina and its surrounding areas, including Park Ivoloina and Betampona Natural Reserve, were hit directly by the devastating Cyclone Gezani, the largest cyclone to have hit this region since the satellite era. The storm left over 380,000 people in need of urgent humanitarian aid, including a very high proportion of MFG's own team. Jean Jacques estimated that up to 80% of trees had been lost at Park Ivoloina causing widespread damage to the forest and the Park's infrastructure. The training and equipment provided by the Saint Louis Zoo Facilities Management team was invaluable in the recovery process, which is still ongoing and is likely to remain so for many years, such was the magnitude of the destruction.

Specialist forester, Gareth Kett, flew to Madagascar in May 2026 to provide further training and guidance for the MFG's chainsaw technicians on how to deal safely with wind-blown trees. Together they worked to secure and fell the most dangerous hanging trees in the zoo to allow critical repair and reconstruction work to go ahead. None of this would have been possible without the Saint Louis Zoo team's brilliant initial training and provision of vital safety equipment and tools. The clean up effort continues, and Park Ivoloina was finally able to reopen to the public on July 31st, 2026.



Gareth Kett with MFG's trainsaw technicians working to remove dangerous hanging trees around Parc Ivoloina Zoo

The Save a Species Project

The diademed sifaka is a critically endangered species. While present at Betampona Natural Reserve, the population is small, fragmented, and has a high mortality rate with very low infant survivorship. Genetic research has also confirmed there is low heterozygosity within this population, which indicates inbreeding. To bolster this population and increase genetic diversity, the MFG team has explored the idea to translocate individuals from a nearby population, located within a mining concession, to Betampona. However, three troubling issues have led some to question whether this translocation will be effective or ethical. First, observational and physical evidence indicate exceptionally high levels of predation on sifakas by fosa at Betampona relative to other sites. Second, a genetic study has disclosed that the potential recruitment population is a separate Evolutionary Unit from the population at Betampona. Third, with very low infant survivorship reaching 100% mortality in some years, it is unclear whether there are other factors to consider that a translocation will not resolve.

As a species, the diadema sifaka does not survive in human care. In fact, of the nine extant species of sifakas, the only species with a substantial zoo population is the Coquerel's sifaka. Therefore, the only option to save sifakas in general is through wildlife conservation strategies.

Yet despite the fact that most people have never seen this species outside of photos or films, this charismatic species is beloved in Madagascar and has been the subject of multiple long-term and on-going conservation research studies. Moreover, there are several additional sites where its presence has been observed, suggesting that a metapopulation approach to save this species is feasible and will be embraced by Malagasy authorities.

Based on this knowledge, in 2025 the Center formed the Save a Species project and recruited a consortium of experts from universities, NGOs, zoos, and botanical gardens to create a comprehensive long-term recovery strategy to stabilize this population.

In the first year of the consortium, members met monthly to share data and other resources, and to identify knowledge gaps. We also brought in the IUCN SSC Conservation Planning Specialist Group to discuss interest and feasibility to create a Population Viability Analysis that will inform a species management plan.

One identified knowledge gap that arose from these meetings was access to unpublished theses and dissertations that are only accessible in Madagascar universities. Another knowledge gap was confirmation of species presence at sites that had not been explored in recent years. To address both of these gaps, the group hired an on-site Conservation Coordinator, Dr. Faramalala (Rina) Francette Vololonirina on a 12-month contract. Rina was hired in June 2026. Within two months, Rina has already summarized and entered into a database a total of 46 scientific articles and theses (published and unpublished). She has also identified 36 individuals as potentially important stakeholders to represent the different sectors involved in the PVA modeling.

Rina's position was made possible by initial funding from the Center, and then through a sizable donation to the Living Earth Collaborative by the Eric & Evelyn Newman Foundation. Rina is being supervised by Dr. Mitch Irwin at the Sadabe office in Madagascar.

Partners of this project include: Saint Louis Zoo (Dr. Lisa Kelley), Madagascar Fauna and Flora Group (Dr. Karen Freeman), Northern Illinois University & Sadabe (Dr. Mitch Irwin), East Carolina University & Mahaliana Labs (Dr. Fidy Rasambainarivo), Missouri Botanical Garden (Dr. Chris Birkinshaw), Washington University in St. Louis (Dr. Crickette Sanz, Dr. Jonathan Losos, Dr. Patricia Mendoza) Conservation Planning Specialist Group (Dr. Phil Miller, Dr. Kristin Leus), Turin University (Dr. Marco Gamba), Smithsonian Institution (Dr. Melissa Hawkins), (Dr. Emily Wroblewski), (Dr. Krista Milich), Naples Zoo (Dr. Tim Tetzlaff, Dr. Andrew Zamora)



Radio-collared diademed sifaka with infant at Betampona Natural Reserve
Photo credit: Fidy Rasambainarivo

Stories from the Field

Written by Fidy Rasambainarivo

This summer, our team returned to Madagascar to study the fosa, one of the island's top predators. In and around Betampona Natural Reserve and Kirindy Mitea National Park in southwestern Madagascar, we captured, examined, and released fosa while collecting data on how they use fragmented forests.

Capturing a fosa requires careful coordination. After safely restraining an animal, the team recorded measurements, collected biological samples, and fitted it with a GPS tracking device before releasing it back into the forest. The GPS data reveal which habitats fosa use, which areas they avoid, and how human activity may influence their movements. Each animal provides a window into how wildlife responds to a changing landscape.

As Madagascar's forests continue to change, understanding how fosa respond to human disturbance can help us identify the habitats that are most important for their survival. The data collected in the field will help guide future research and conservation efforts.

This work also combines research with training and capacity building. Our field teams are led by Malagasy veterinarians, scientists, and technicians with expertise in wildlife capture, animal handling, disease surveillance, GPS technology and molecular research.
By strengthening local expertise and leadership, the project supports Madagascar's ability to study and conserve its unique wildlife.





Fosa at Kirindy Mitea National Park
Photo credit: Fidy Rasambainarivo

Paving the Way for the Next 10 Years

In 2026, the Saint Louis Zoo hosted the Madagascar Fauna and Flora Group meetings. Attendees represented six countries, four zoos, three universities and a botanical garden. The most notable achievement at the meetings was the formal approval of the Madagascar Flora and Fauna Group Strategic Plan for 2026-2036. This plan highlights seven goals that include: enacting Madagascar's first of its kind *ex situ* conservation breeding management strategy, focused conservation efforts for the three most critically endangered lemur species in Betampona, innovative forest restoration efforts, coexistence programs with neighboring communities, support for Malagasy-led research projects, and science-driven conservation. To further support this strategic plan, the Center will focus financial and human resources on three of these goals: Goal 1) managing lemurs for survival, Goal 5) restoring a biodiverse future, and Goal 7) science-driven conservation.





Top: Group photo of the MFG meeting attendees at the Saint Louis Zoo

Left: Cover of the "2026-2036 MFG Strategic Plan"

Recognition

Awards

Darwn Initiative Grant: £562,620 ($744,400 USD) for a project titled "Holistic habitat restoration and sustainable livelihood promotion in eastern Madagascar" (Dr. Karen Freeman)

Field Conservation Grant 2025.08: ($10,000) Managing Free-Roaming Dogs and Cats populations to Protect Wildlife in Betampona Natural Reserve, Madagascar (Dr. Fidy Rasambainarivo)

Field Research Conservation Grant 2026.06: ($10,000) Resource partitioning among dogs and endemic Malagasy carnivores (Dr. Fidy Rasambainarivo)

Maxwell Hanrahan Foundation Field Biology Award 2025: ($100,000) (Dr. Fidy Rasambainarivo)

Publications in peer-reviewed journals

Jean Nöel, Freeman, K., Jaozandry, J.J., Crottini, A., Lava H., Georges, Rosa, G.M., Velo, J.H. Andreone, F. (2025) Hidden breeding behaviour in a still undescribed giant Mantidactylus frog from Betampona Strict Nature Reserve, eastern Madagascar. Herpetology Notes, Volume 18: 969–972 (published online on 21 October 2025)

Mendoza, A.P., Bonadonna, G. Castro, S.J., Mahatoly, L.U., Vololonirina, F.F., Bavary, O.G., Ramilijaona, O.M., Raharivololona, B.M., Andrianarimisa, A., Ranaivoarisoa, J.F., Rakotoarivony F., Kelley, E., Rasambainarivo, F., Porton, I., Freeman, K., Randrianasolo, A. Milich, K.M., Wroblewski, E.E. (2025). Impact of geographic isolation on the genetic diversity of diademed sifakas (*Propithecus diadema*) and black-and-white ruffed lemurs (V*arecia variegata*) in eastern Madagascar. *Global Ecology and Conservation*, 62. doi: 10.1016/j.gecco.2025.e03832

Piccoli, C., Paoletti, A., Andreone, F., Freeman, K., Georges, Harris, D.J., Honoré Lava, Melo M., Nöel, J.,Ramamonjisoa, D.L., Randriamialisoa, Raselimanana, A.P., Rosa, G.M., Salvi, D., Scanarini, E., Velo, J.H. & Crottini, A. (2025) The amphibians of Betampona: an updated account of the remarkable diversity of Madagascar's central-eastern Strict Nature Reserve, Systematics and Biodiversity, 23:1, 2505180, DOI: 10.1080/14772000.2025.2505180

Rasambainarivo, F. T., Nilsson, I. G.*, Cheeks, D. E.*, Yang, W., & Metcalf, C. J. E. (2026). Evaluating how demography and temperature increase might alter the burden of congenital Toxoplasmosis in Africa. PLOS Neglected Tropical Diseases, 20(3), e0014058.

Rasambainarivo, F. T., Pomerantz, J., Rasolofoniaina, O., Rahajanirina, L. P., & Dollar, L. (2025). Physiological health benchmarks in free-ranging Fosa (*Cryptoprocta ferox*): establishing reference intervals to assess the impact of anthropogenic disturbance on an endemic apex predator. Journal of Mammalogy, gyaf063.

Rasambainarivo, F., Hinson, B.*, Rasolofoniaina, A. O., Chelaghma, S., Junge R. E., Metcalf, C. J. E., Williams, C., V., & Rice, B. L. (2025). Evolutionary history, longevity and terrestriality predict Toxoplasma gondii seroprevalence in free-ranging non-human primates. International Journal for Parasitology: Parasites and Wildlife, https://doi.org/10.1016/j.ijppaw.2025.101143

Rasambainarivo, F., Pomerantz, J., Rasolofoniaina A. O., Rahajanirina, L.P., and Dollar, L. (2025), Physiological health benchmarks in free-ranging Fosa (Cryptoprocta ferox): establishing reference intervals to assess the impact of anthropogenic disturbance on an endemic apex predator. Journal of Mammalogy, https://doi.org/10.1093/jmammal/gyaf063

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Donors

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Partners

Madagascar Fauna and Flora Group
Mahaliana Labs

Cover Photo: Diademed sifaka at Andasibe. Photo Credit: James Ward